

## WEST Search History

DATE: Saturday, February 07, 2004

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<i>DB=PGPB,USPT,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=AND</i>			
<input type="checkbox"/>	L3	l2 and butylene	0
<input type="checkbox"/>	L2	4229570.pn.	2
<input type="checkbox"/>	L1	(mushroom adj extract) same butylene	5

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<input type="checkbox"/>	L2	(mushroom adj extract) same butylene	5
<input type="checkbox"/>	L1	(mushroom adj extract) and butylene	15

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# MushroomScience™

Since 1994, Mushroom Nutraceuticals Formulated  
to the Highest Standards of Traditional Herbalism and Clinical Research

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## Only Hot Water Extracts Are:

- 100% Used in Traditional Herbalism
- 100% Used in The Clinical Research
- Proven Effective for Therapeutic Use

There are 1,000's of studies proving the effectiveness of hot water extracts (liquid and dehydrated). There is NOT EVEN ONE independent study verifying the effectiveness of un-extracted mycelium bio-mass or un-extracted mushrooms for immune health. Which product would you bet your life on?

## Why a Hot Water Extract?

Mushrooms are unique, stationary like a plant, yet built from chitin, the same material contained in the shell of a lobster. Understanding the properties of chitin is critical to understanding how to choose an effective, high-quality medicinal mushroom product.

Chitin is indigestible by humans.<sup>①</sup> Yet chitin, which makes up the cell walls of mushrooms and mushroom mycelium, contains the potent immune stimulating compounds common to all medicinal mushrooms, the polysaccharides.<sup>②</sup> Practitioners of Traditional East Asian Medicine and modern clinical researchers both use the same preparation technique to overcome this barrier, hot water.

Only a heated liquid solution can break down the indigestible chitin and release the active compounds into a concentrated, bio-available form.<sup>③</sup> When used in Traditional Chinese Medicine for chronic conditions or immune health medicinal mushrooms are always prepared with heat and water, as a tea or a decoction. <sup>(4,5,6,7,8)</sup> Medicinal mushrooms are never used in the un-extracted form (as mycelium bio-mass powder or dried mushroom powder), and rarely prepared as a tincture (soaked in alcohol and water in the absence of heat).

Scientific research backs this traditional preparation method. Every published, independent study on the use of medicinal mushrooms for immune health has been conducted with a hot water or hot water/alcohol extract. Every form of extraction, including precipitation with alcohol, requires a heated liquid

solution to first release the polysaccharides, the primary active compounds, from the chitinous cell walls of the mushroom and mushroom mycelium.<sup>(9)</sup>

This is true for Reishi;<sup>(10,11)</sup> *Coriolus versicolor*;<sup>(12,13)</sup> Maitake;<sup>(14)</sup> Shiitake;<sup>(15,16)</sup> and Cordyceps.<sup>(17)</sup> All of the well-known isolates are also extracted in a heated aqueous solution, including Maitake Fraction from Maitake, PSK/VPS and PSP from *Coriolus versicolor*, and Lentinan and LEM from Shiitake.

According to the American Herbal Pharmacopoeia mycelium bio-mass products are inferior because of a "lack of bio-availability". This publication also states that concentrates derived through proper extraction contain active compounds "magnitudes higher than what is available in crude mycelium biomass preparations".<sup>(18)</sup>

At Mushroom Science we take these lessons seriously. Our dehydrated hot water extracts are formulated to deliver all of the important constituents unique to each mushroom. Every batch is analyzed for purity, contains guaranteed amounts of the active compounds, and is offered as a pure extract, containing no mycelium bio-mass or ground mushrooms as filler.

### End Notes

1,3,9 Upton, R., et al. Reishi Mushroom (*Ganoderma lucidum*) Standards of Analysis, Quality Control, and Therapeutics. American Herbal Pharmacopoeia. p. 9 (Sept. 2000).

2 Alexopoulos, C.J., Mims, C.W. Introductory Mycology. John Wiley & Sons. p. 10, 1979.

4 Torisu, M., et al. Significant prolongation of disease-free period gained by oral PSK (*Coriolus versicolor*) administration after curative surgical operation of colon cancer. *Cancer Immunology Immunotherapy*, 31:261-268 (1990).

5 Xie, Z., et al. Dictionary of Traditional Chinese Medicine. The Commercial Press Ltd., Hong Kong, p. 201 (1988).

6 Liu, B., Bau, Y., Fungi Pharmacopoeia. Kiniko Press, p. 170-72 (1980).

7 Jianzhe, Y., Icons of Medicinal Fungi from China. Science Press, Beijing p. 145 (1987).

8 Bensky D., et al. *Materia Medica of Chinese Herbal Medicine*, Eastland Press, Seattle, p. 338-39 (1993).

### Reishi

10 Liu, B., Bau, Y., Fungi Pharmacopoeia. Kiniko Press, p. 170-72 (1980).

11 Xie, Z., et al. Dictionary of Traditional Chinese Medicine. The Commercial Press Ltd., Hong Kong, p. 201 (1988).

### Coriolus

12 (U.S. Patent #4,229,570)

13 Liu, B., Bau, Y., Fungi Pharmacopoeia. Kiniko Press, p. 198-200 (1980).

### Maitake

14 Jianzhe, Y., Icons of Medicinal Fungi from China. Science Press, Beijing p. 195 (1987).

### Shiitak

15 Chihara, G., et al. Inhibition of Mouse Sarcoma 180 by Polysaccharides from *Lentinus edodes* (Shiitake). *Nature*, Vol. 222, p. 637 (1969).

16 Liu, B., Bau, Y., *Fungi Pharmacopoeia*. Kiniko Press, p. 170-72 (1980).

### **Cordyceps**

17 Bensky D., et al. *Materia Medica of Chinese Herbal Medicine*, Eastland Press, Seattle, p. 338-39 (1993).

18 Upton, R., et al. *Reishi Mushroom (Ganoderma lucidum) Standards of Analysis, Quality Control, and Therapeutics*. American Herbal Pharmacopoeia. p. 19 (Sept. 2000).

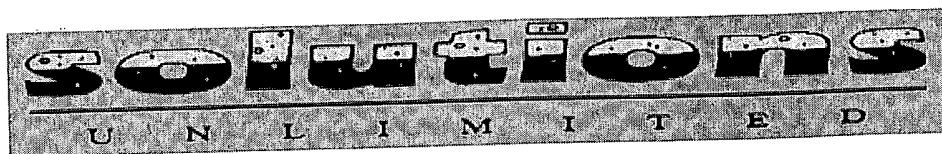
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## MEDICINAL MUSHROOMS

Red Reishi (*Ganoderma lucidum*) - also known as Ling Chi. Reishi is used as a daily tonic to maintain and improve good health, increasing longevity, in the treatment of cancer and resistance to and recovery from diseases. Used daily, it maintains peak cellular immunity, improves liver and cardiovascular health, by reducing blood pressure, cholesterol and platelet aggregation. It is also used for hepatitis C, increasing oxygen absorption, and by mountain climbers to combat altitude sickness. CAUTION: Reishi can cause thinning of the blood and increased blood flow so women who menstruate heavily and persons going into surgery should use with caution. Since cooking with Reishi is not practical, we have listed some other ways to enjoy the health benefits:

**Reishi Tea** - slice the dried mushroom and simmer in boiling water for 2-3 hours. Strain and add a little honey or fruit juice (to overcome the bitterness of Reishi). Can be stored in the refrigerator for up to three days. Drink hot or cold. Do not use aluminum or cast iron to prepare, store or serve Reishi Tea.

**Reishi Tonic** - slice about 1/2 ounce of dried Reishi and to a bottle of wine or brandy. Let stand for at least six weeks. Enjoy a small glass each day.

**Reishi Soup** - simmer Reishi slices in your favorite soup for 2-3 hours. Adds an earthy flavor.

Shiitake (*Lentinula edodes*) - Shiitake is used to stimulate immune function, liver health and reducing cholesterol levels. It has been used for Hepatitis B and also seems to posses anti-viral properties. Shiitake activates killer and helper "T" cells.

Maitake (*Grifola frondosa*) - also known as Hen-of-the-Woods. Maitake is being used for many cancers including breast and prostate, HIV, chronic fatigue syndrome, diabetes, reduction in blood pressure and cholesterol levels. Studies at the National Cancer Institute have shown complete tumor regression in one-third to one-half of the trials.

Oyster Mushroom (*Pleurotus ostreatus*) - also known as Tree Oyster. This mushroom naturally produces Lovastatin, an FDA approved drug for the treatment of blood cholesterol. Animal studies have shown a 79.4% tumor inhibition rate against sarcoma 180 and a 89.7% inhibition rate against a mammary tumor system (MM-46). It totally negated increases in triglycerol levels and liver cholesterol resulting from chronic alcohol ingestion in hamsters.

Silver Ear (*Tremella fuciformis*) - also known as Snow Mushroom. Tremella is effective in treating leukopenia in cancer patients by radio- and chemotherapy. It also boosts immunological functions and

stimulate leukocyte activity. It has been shown to improve immunity and resistance to chronic bronchitis. It has also shown to be very effective against hepatitis and tumors.

Himematsutake (Agaricus blazei) - also known as Congumelo do Sol. Quickly becoming the most important mushroom for its medical qualities, it contains the largest concentrations (up to 14%) of 1,3- and 1,6- *beta* glucans than any other mushroom. Its unique polysaccharides are selectively cytotoxic on tumor cells. An added benefit-it adds an almond flavor to culinary dishes.

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SHARON SPRINGS, NY 13459-9726  
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